

CLAIMS

What is claimed is:

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1. A manufacturing method for manufacturing an electro-optical device having an electro-optical panel with a substrate holding an electro-optical material and a mount base member bonded to the substrate, the manufacturing method comprising a step of connecting a first terminal bank, formed on the surface of the substrate, to a second terminal bank formed on the surface of the mount base member at a pitch different from a pitch of the first terminal bank when the substrate is bonded to the mount base member,

wherein the connection step connects the first terminal bank and the second terminal bank, both of which become substantially equal to each other in pitch when the substrate and the mount base member are deformed during the bonding of the substrate and the mount base member.

2. The manufacturing method for manufacturing an electro-optical device according to claim 1, comprising a step of aligning the substrate with the mount base member prior to the connection step so that a plurality of first alignment marks mutually spaced apart on the surface of the substrate is aligned with a plurality of second alignment marks mutually spaced apart on the surface of the mount base member at a spacing approximately equal to a spacing of the plurality of first alignment marks.

3. The manufacturing method for manufacturing an electro-optical device according to claim 1, wherein, in the connection step, the substrate and the mount base member are bonded together with an adhesive layer interposed between the substrate and the mount base member by heating the adhesive layer.

4. The manufacturing method for manufacturing an electro-optical device according to claim 3, wherein a linear thermal expansion coefficient of the mount base member is larger than a linear thermal expansion coefficient of the substrate, and

wherein the pitch of the second terminal bank is smaller than the pitch of the first terminal bank prior to the connection step.

5. The manufacturing method for manufacturing an electro-optical device according to claim 4, wherein the mount base member is a member having a thickness within a range from 50 μm to 125 μm and a linear thermal expansion coefficient falling within a range from $2.5 \times 10^{-5}/\text{K}$ to $2.6 \times 10^{-5}/\text{K}$ under a measurement temperature range from 100°C to 200°C, and

wherein the pitch of the second terminal bank is 0.996 times to 0.997 times the pitch of the first terminal bank.

6. The manufacturing method for manufacturing an electro-optical device according to claim 4, wherein the mount base member is a member having a thickness within a range from 5 μm to 75 μm and a linear thermal expansion coefficient falling within a range from $0.8 \times 10^{-5}/\text{K}$ to $1.0 \times 10^{-5}/\text{K}$ under a measurement temperature range from 20°C to 100°C , and

wherein the pitch of the second terminal bank is approximately 0.998 times the pitch of the first terminal bank.

7. The manufacturing method for manufacturing an electro-optical device according to claim 1, wherein the substrate contains a material selected from the group consisting of glass and silicon, and the mount base member contains a material selected from the group consisting of polyimide and polyester.

8. The manufacturing method for manufacturing an electro-optical device according to claim 1, wherein the substrate contains glass, and the mount base member contains polyimide.

9. A terminal connection method for connecting a first terminal bank formed on the surface of a first base member to a second terminal bank formed on the surface of a second base member, the connection method comprising the steps of:

fabricating the second terminal bank at a pitch different from a pitch of the first terminal bank; and

connecting the first terminal bank and the second terminal bank, both of which become substantially equal to each other in pitch when the first base member and the second base member are deformed during the bonding of the first base member to the second base member.

10. The terminal connection method according to claim 9, wherein, in the bonding of the first base member to the second base member, the first base member and the second base member are bonded together with an adhesive layer interposed between the first base member and the second base member by heating the adhesive layer.

11. The terminal connection method according to claim 10, wherein the linear thermal expansion coefficient of the second base member is larger than the linear thermal expansion coefficient of the first base member, and

wherein the pitch of the second terminal bank is smaller than the pitch of the first terminal bank prior to the bonding step.

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12. A manufacturing method for manufacturing a mount base member having a second terminal bank to be connected to a first terminal bank formed on a base member and being thermal-compression bonded to the base member, the manufacturing method comprising the step of forming the second terminal bank in such a manner that the pitch of the second terminal bank is a/b times the pitch of the first terminal bank, when, subsequent to the thermal compression bonding of the mount base member to the base member, the first terminal bank expands in width in the transverse direction thereof on the base member by a times and the second terminal bank expands in width in the transverse direction thereof on the mount base member by b times.

13. The manufacturing method for manufacturing a mount base member according to claim 12, wherein the coefficients a and b defining the pitch of the second terminal bank are values determined by a linear thermal expansion coefficient and thermal compression bonding conditions of the mount base member.

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14. An electro-optical device comprising:
an electro-optical panel including a substrate holding an electro-optical material;
a mount base member bonded to the substrate;

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a first terminal bank formed on the surface of the substrate;
a plurality of first alignment marks formed and mutually spaced apart on the surface of the substrate;

a second terminal bank formed and mutually spaced apart on the mount base member, wherein the second terminal bank is connected to the first terminal bank at a pitch thereof substantially equal to the pitch of the first terminal bank; and

a plurality of second alignment marks formed on the surface of the mount base member, and spaced mutually more apart than the spacing of the first alignment marks.

15. The electro-optical device according to claim 14, wherein one group of the plurality of first alignment marks and the other group of the plurality of first alignment marks are arranged to be opposed to each other with the first terminal bank interposed therebetween, and

wherein one group of the plurality of second alignment marks and the other group of the plurality of second alignment marks are arranged to be opposed to each other with the second terminal bank interposed therebetween.

16. The electro-optical device according to claim 14, wherein the substrate and the mount base member are bonded to each other with an

adhesive layer therebetween, and wherein the adhesive layer contains conductive particles dispersed therewithin to conductively connect the first terminal bank to the second terminal bank.

17. The electro-optical device according to claim 14, wherein the mount base member is a film-like member having flexibility.

18. The electro-optical device according to claim 14, wherein the substrate contains a material selected from the group consisting of glass and silicon, and the mount base member contains a material selected from the group consisting of polyimide and polyester.

19. The electro-optical device according to claim 14, wherein the substrate contains glass, and the mount base member contains polyimide.

20. The electro-optical device according to claim 14, wherein the mount base member is a member having a thickness within a range from 50 μm to 125 μm and a linear thermal expansion coefficient falling within a range from $2.5 \times 10^{-5}/\text{K}$ to $2.6 \times 10^{-5}/\text{K}$ under a measurement temperature range from 100°C to 200°C, and

wherein the spacing of the second alignment marks is 1.003 times to 1.004 times the spacing of the first alignment marks.

21. The electro-optical device according to claim 14, wherein the mount base member is a member having a thickness within a range from 5 μm to 75 μm and a linear thermal expansion coefficient falling within a range from $0.8 \times 10^{-5}/\text{K}$ to $1.0 \times 10^{-5}/\text{K}$ under a measurement temperature range from 20°C to 100°C , and

wherein the spacing of the second alignment marks is approximately 1.002 times the spacing of the first alignment marks.

22. Electronic equipment comprising an electro-optical device according to claim 14.

23. A mount base member to be bonded to a substrate of an electro-optical panel, comprising a second terminal bank formed at a pitch different from a pitch of a first terminal bank formed on the substrate and connected to the first terminal bank.

24. A mount base member to be thermal compression bonded to a substrate of an electro-optical panel, the mount base member comprising a second terminal bank to be connected to a first terminal bank formed on the substrate, wherein the pitch of the second terminal bank prior to the thermal compression bonding is a/b times the pitch of the first terminal bank, when, subsequent to the thermal compression bonding of the mount base

member to the substrate, the first terminal bank expands in width in the transverse direction thereof on the substrate by a times and the second terminal bank expands in width in the transverse direction thereof on the mount base member by b times.

25. A mount base member to be thermal compression bonded to a substrate of an electro-optical panel, the mount base member comprising a second terminal bank to be connected to a first terminal bank formed on the substrate, wherein the pitch of the second terminal bank prior to the thermal compression bonding is $1/b$ times the pitch of the first terminal bank, when, subsequent to the thermal compression bonding of the mount base member to the substrate, the second terminal bank expands in width in the transverse direction thereof on the mount base member by b times.